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ABSTRACT

This report provides the most recent data on the food security of U.S. households. Preliminary estimates indicate that 89.9% of U.S. households were food secure in 1999, up 0.6 percentage points from 1995. Some 31 million Americans were food insecure: they did not have assured access at all times to enough food for an active, healthy life. In 3% of all households, one or more household members were hungry, at least some time during the year, because of inadequate resources. Between 1995 and 1999, the number of food-insecure households fell by 12%, and the number with hunger due to inadequate resources fell by 24%. Households with incomes between 50 and 130% of the poverty line were the only household types among the 30 subgroups studied to show a higher rate of food insecurity in 1999 than 1995. Appendixes contain response frequencies of households for items on the Food Security Scale, background about the Food Security measurement project, and a comparison of prevalence rates of food insecurity and hunger across years. (Contains 1 figure, 7 tables, and 13 references.) (Author/SLD)

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Household Food Security in the United States, 1999

Food Assistance and Nutrition Research Report No. 8

Margaret Andrews, Mark Nord, Gary Bickel, and Steven Carlson

U.S. Department of Agriculture

Fall 2000

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Household Food Security in the United States, 1999. By Margaret Andrews, Mark Nord, Gary Bickel, and Steven Carlson. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Food Assistance and Nutrition Research Report No. 8.

This is the latest in the series of reports *Measuring Food Security in the United States*.

Abstract

This report provides the most recent data on the food security of American households. Preliminary estimates indicate that 89.9 percent of American households were food secure in 1999, up 0.6 percentage point from 1995. Some 31 million Americans were food insecure--they did not have assured access at all times to enough food for an active, healthy life. In 3 percent of all households, one or more household members were hungry, at least some time during the year, because of inadequate resources. Between 1995 and 1999, the number of food-insecure households fell by 12 percent, and the number with hunger due to inadequate resources fell by 24 percent. Households with incomes between 50 and 130 percent of the poverty line were the only household types among the 30 subgroups studied to show a higher rate of food insecurity in 1999 than in 1995.

Keywords: Food security, food insecurity, hunger

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Household Food Security in the United States, 1999

Margaret Andrews, Mark Nord, Gary Bickel, Steven Carlson

Introduction

Nearly 90 percent of all U.S. households, 240 million Americans, were food secure during the 12 months ending in April 1999, according to preliminary data. "Food secure" means they had assured access, at all times, to enough food for an active, healthy life. The remaining 10.1 percent of U.S. households, 31 million Americans, were food insecure, meaning that at some time during the previous year they were uncertain of having, or unable to acquire, adequate food sufficient to meet basic needs at all times due to inadequate household resources for food. Of these, about 3 million households were food insecure to the extent that one or more household members were hungry due to inadequate resources at least some time during the year.

This report presents the most recent available information on the changing level of food security among U.S. households over the period 1995-99 and estimates of the extent of hunger and food insecurity in 1999. While these data are subject to revision as independent analyses and reviews are completed, they are being released to provide timely information on the current food security status of the U.S. population.

The incidence of food insecurity and hunger in the United States has declined significantly since food security data were first collected in 1995. The number of food-insecure households fell by 12 percent between 1995 and 1999. The prevalence of hunger fell even more sharply. The number of households where at least one member was hungry because of insufficient resources in the previous 12 months fell by 24 percent between 1995 and 1999.[1] Substantial decreases in food insecurity and hunger were observed, over this period, for all household types. However, even though there were fewer food-insecure households with incomes between 50 and 130 percent of the poverty line in 1999, a higher proportion of households in this income range were food insecure in 1999 than in 1995.

Method

The preliminary results presented in this report are based on data collected in the Food Security Supplements to the Current Population Survey (CPS) for the years 1995-1999. The report provides an update to its predecessor in this series, *Household Food Security in the United States, 1995-1998: Advance Report* (Bickel, Carlson, and Nord, 1999), released in July 1999 by USDA's Food and Nutrition Service. Briefly, the measurement method uses responses to a series of questions about conditions and behaviors known to characterize households having difficulty meeting basic food needs.[2] Each question asks whether the condition or behavior occurred during the previous 12 months and specifies a lack of money or other resources to obtain food as the reason for the condition or behavior.[3] (Response frequencies for the

[1] After adjusting for population growth, the proportions of households classified as food insecure or with hunger declined by somewhat larger amounts: 16 percent for the food insecure and 28 percent for those with hunger.

[2] The methods used to measure the extent of food insecurity and hunger have been described in several places (Hamilton et al., 1997a, 1997b; Andrews et al., 1998; Bickel et al., 1998; Carlson et al., 1999.) Further details on the development of the measure are provided in Appendix B.

[3] Voluntary fasting or dieting to lose weight are thereby excluded from the measure.

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Examples of Questions from the Survey

"We worried whether our food would run out before we got money to buy more." Was that often, sometimes, or never true for you in the last 12 months?

"The food that we bought just didn't last and we didn't have money to get more." Was that often, sometimes, or never true for you in the last 12 months?

In the last 12 months did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough money for food?

In the last 12 months were you ever hungry, but didn't eat, because you couldn't afford enough food?

(For households with children) In the last 12 months did any of the children ever not eat for a whole day because there wasn't enough money for food?

18 items used to classify households are provided in Appendix A. Full-question wordings are presented in Hamilton et al., 1997a, Price et al., 1997, and Bickel et al., 2000.) Each respondent household is classified into one of three categories (food secure, food insecure without hunger, food insecure with hunger) based on the household's overall pattern of response to all items. Appropriate weighting factors are then applied to the surveyed households to make nationally representative prevalence estimates.

Due to changes in the administration of the Food Security Supplement in the initial years of data collection, statistics presented in this report are based on two different data-editing protocols. One protocol adjusts the data so that prevalence estimates are consistent across all years, as well as comparable with the same adjusted data series reported in *Household Food Security in the United States, 1995-1998: Advance Report*. This provides the most accurate picture of trends in the prevalence of food insecurity and hunger over the past 5 years. The second data-editing protocol makes full use of all households' responses and makes no adjustments for cross-year comparability. Thus, it provides the most accurate picture of the current prevalence of food insecurity and hunger.

The adjustments required for cross-year comparability result in understating the prevalence of food insecurity. For example, the best estimate of food-insecurity prevalence in 1999, using the unadjusted data, is 10.1 percent (table 2), while the estimate adjusted for cross-year comparability (table 1) is 8.7 percent. The estimated prevalence of hunger, the more severe measure, is less affected by the screening change. The unadjusted estimate for 1999 is 3.0 percent, compared with an estimated prevalence of 2.8 percent, based on the data adjusted for comparability.

For future data collections, continued use of the 1998/1999 survey administration procedures is anticipated. Thus, food-security and hunger prevalence statistics based on the unadjusted data will be directly comparable from 1998 onward. The present report provides the bridging comparison, with table 1 and appendix table C-1 being comparable to earlier years and table 2, table 3, and appendix table C-2 being comparable for 1998, 1999, and future years.[4]

Trends in Prevalence of Food Insecurity and Hunger

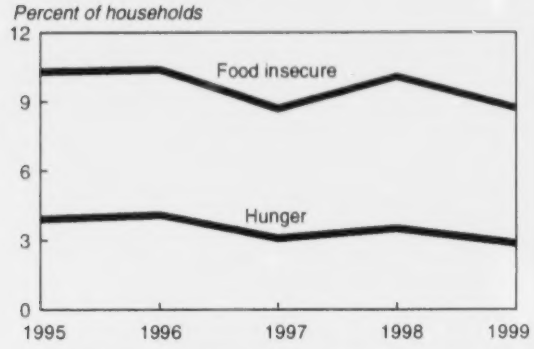
Prevalence estimates presented in this section are based on data from the 1995-1999 surveys adjusted for cross-year comparability due to differences in survey administration in 1995-1997.

Figure 1 shows the pattern of change in the prevalence of food insecurity and hunger between 1995 and 1999.[5] In general, food insecurity and hunger declined over the period with year-to-year deviations from trend. However, the slight upturn in 1996 and the more sizable increase in 1998 warrant further study. One possibility is that the data are subject to a seasonal influence, as food-security data collection occurs in April in odd-numbered years and August or September in even years.

[4]Further details of the adjustments for cross-year comparability and differences in survey administration underlying them are discussed in Appendix C.

[5]The similar appendix figure C-1 in appendix C shows a comparison between prevalence estimates based on the common screen in each year and prevalence estimates based on the unadjusted data.

Figure 1
Prevalence of food insecurity and hunger in U.S. households, 1995-99



Source: Calculated by ERS based on Current Population Survey Food Security Supplements of April 1995, August 1996, April 1997, September 1998, and april 1999. Data are adjusted for cross-year comparability.

Table 1--Prevalence of food security, food insecurity, and hunger for households and persons, by year

(Adjusted for cross-year comparability)

Category	Total*	Food secure		Food insecure:					
				All		Without hunger		With hunger	
	1,000	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*
Households									
1995	100,445	90,097	89.7	10,348	10.3	6,402	6.4	3,946	3.9
1996	101,508	90,964	89.6	10,544	10.4	6,407	6.3	4,137	4.1
1997	102,373	93,459	91.3	8,914	8.7	5,760	5.6	3,154	3.1
1998	103,480	92,972	89.8	10,509	10.2	6,820	6.6	3,689	3.6
1999	104,816	95,664	91.3	9,152	8.7	6,166	5.9	2,987	2.8
All persons in households									
1995	261,342	230,910	88.4	30,431	11.6	19,742	7.6	10,689	4.1
1996	264,780	233,221	88.1	31,559	11.9	20,119	7.6	11,440	4.3
1997	266,128	240,009	90.2	26,120	9.8	18,045	6.8	8,075	3.0
1998	268,886	237,721	88.4	31,165	11.6	21,771	8.1	9,394	3.5
1999	270,609	243,652	90.0	26,957	10.0	19,441	7.2	7,515	2.8
Adults in households									
1995	191,063	172,862	90.5	18,200	9.5	11,611	6.1	6,589	3.4
1996	193,608	175,003	90.4	18,606	9.6	11,582	6.0	7,024	3.6
1997	195,180	179,420	91.9	15,761	8.1	10,601	5.4	5,160	2.6
1998	197,423	178,631	90.5	18,792	9.5	12,657	6.4	6,135	3.1
1999	199,116	182,793	91.8	16,323	8.2	11,447	5.8	4,875	2.4
Children in households									
1995	70,279	58,048	82.6	12,231	17.4	8,131	11.6	4,100	5.8
1996	71,172	58,218	81.8	12,953	18.2	8,537	12.0	4,416	6.2
1997	70,948	60,589	85.4	10,359	14.6	7,444	10.5	2,915	4.1
1998	71,463	59,090	82.7	12,373	17.3	9,114	12.8	3,259	4.6
1999	71,493	60,859	85.1	10,634	14.9	7,994	11.2	2,640	3.7

* —See Notes to tables, page 9

The declines in food insecurity and hunger from 1998 to 1999 were in the opposite direction of the changes observed from 1997 to 1998 (table 1). While food-insecure households accounted for 8.7 percent of households in the 1997 and 1999 data (as adjusted), this proportion had risen to 10.2 percent (adjusted) in 1998. A similar change occurred in the proportion of households that were food insecure with hunger. In 1998 the proportion of households experiencing hunger rose 0.5 percentage point above the 1997 rate, but in 1999 fell 0.8 percentage point to the lowest level (2.8 percent, adjusted) since these data have been collected.

Between 1995, when food security was first measured at the national level, and 1999, the incidence of food insecurity declined for nearly all household types (fig. 2).[6] Large percentage decreases were observed for female-headed households with children, Hispanic households, households living in central cities, and households in the Midwest. However, for households with income between 50 and 130 percent of the poverty line, the percentage of households experiencing food insecurity increased, even though there were 715,000 fewer food-insecure households in this category in 1999 than in 1995. For households with income above 185 percent of the poverty line, the percentage experiencing food insecurity was unchanged.

For most household types, the declines in hunger prevalence between 1995 and 1999 were similar to the declines in food insecurity (fig. 3). However, among low-income households, the prevalence of hunger declined even as the prevalence of food insecurity increased. In other words, while the overall prevalence of food insecurity rose for households with incomes below 130 percent of the poverty line in this period, the average severity of that food insecurity declined. The distribution within this group shifted away from the more severe range (food insecure with hunger) to the less severe range (food insecure without hunger).

[6]The prevalence rates represented in figures 2 and 3 were adjusted for comparability across years. The adjusted prevalence rates for 1995 are found in Bickel, Carlson, and Nord, 1999. Those for 1999 are provided in appendix table C-1.

Prevalence of Food Insecurity and Hunger in 1999

Prevalence estimates presented in this section are based on the unadjusted data from the 1999 survey. Although they cannot be compared with 1995-1997 estimates, they are comparable to unadjusted 1998 statistics presented in Appendix C and with planned future data collections.

The prevalence of food insecurity and hunger varied considerably among household types (table 2). As in previous years, some groups experienced rates of food insecurity greater than the national average:

- 36.7 percent of households with incomes below the official poverty line ($16,895 for a family of four in 1999),
- 29.7 percent of households with children headed by a single woman,
- 21.2 percent of black households,
- 20.8 percent of Hispanic households.

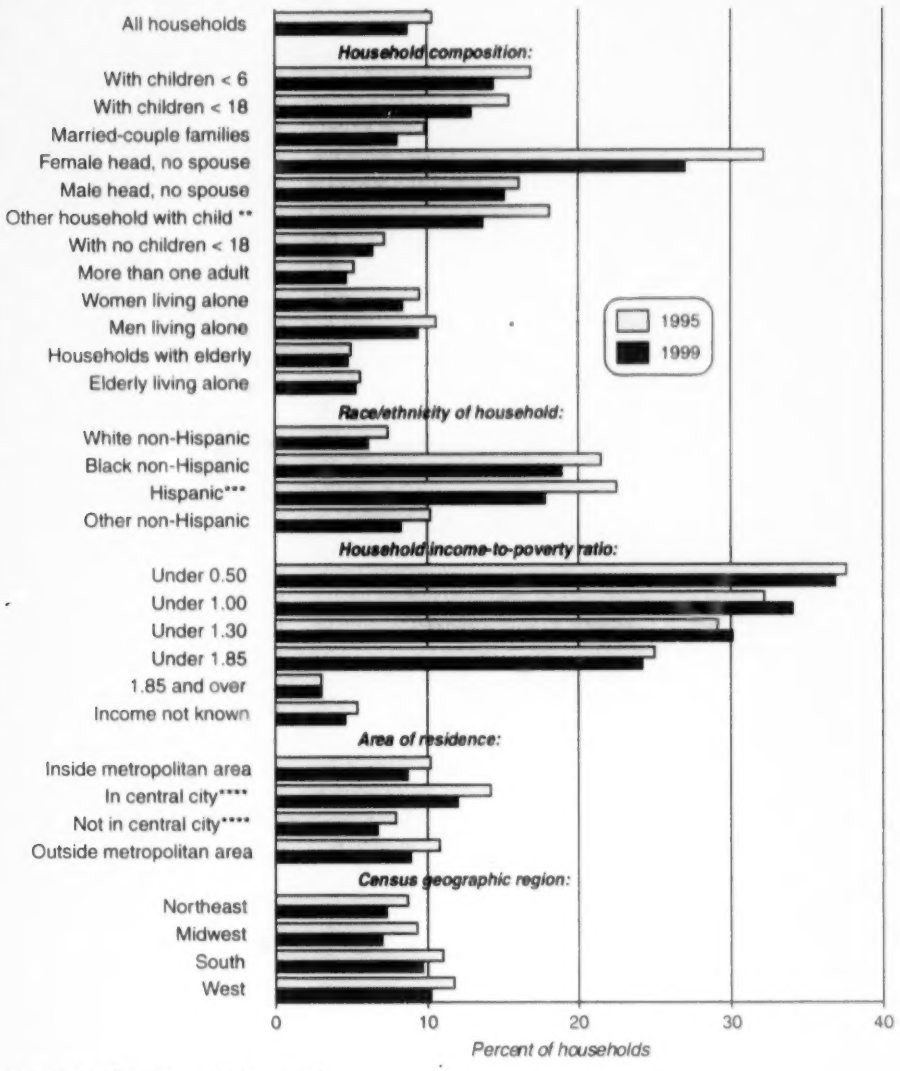
Overall, households with children experienced food insecurity at double the rate for households without children (14.8 versus 7.4 percent). Among households with children, those with married-couple families showed a lower rate of food insecurity (9.6 percent) than the national average (10.1 percent) for all households.

In terms of individuals, about 31 million persons lived in food-insecure households, with 12 million (39 percent) of them being children (table 2). In addition, some 5 million adults and 2.7 million children lived in households where someone in the household had experienced hunger in the previous year due to inadequate resources.

The prevalence of food insecurity for households located in central cities (13.8 percent) and nonmetro areas (10.1 percent) substantially exceeded that of households in suburbs and other metropolitan areas outside central cities (7.7 percent). Regionally, the food-insecurity rate was above the national rate in the South and West (11.1 and 11.8 percent, respectively) and below the national rate in the Midwest and Northeast (8.3 percent in both cases).

Hunger prevalence varies with household characteristics in a pattern similar to that observed for food insecurity. Hunger prevalence is much higher than average among families headed by a single woman (8.1 per-

Figure 2
Prevalence of food insecurity, with or without hunger, 1995 versus 1999



, *, **** -- See notes to tables, page 9.

Calculated by ERS based on data from Current Population Survey Food Security Supplements as of April 1995 and April 1999, adjusted for cross-year comparability.

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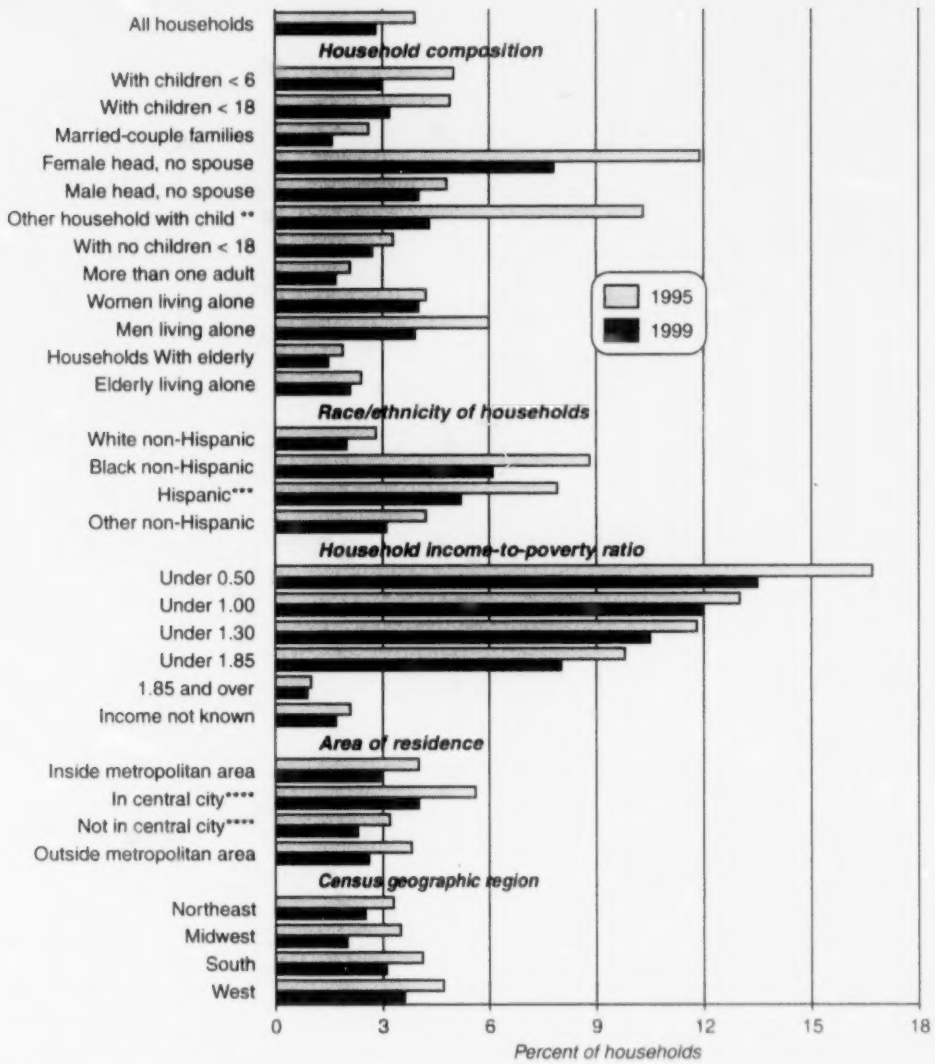
Figure 3
Prevalence of hunger, 1995 versus 1999



, *, **** -- See notes to tables, page 9.

Source: Calculated by ERS based on data from Current Population Survey Food Security Supplements of April 1995 and April 1999, adjusted for cross-year comparability.

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Table 2–1999: Prevalence of food security, food insecurity, and hunger by selected characteristics of households

(Based on unadjusted data)

Category	Total*	Food secure		Food insecure: All		Without hunger		With hunger	
	1,000	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*
All households	104,684	94,154	89.9	10,529	10.1	7,420	7.1	3,109	3.0
All persons in households	270,318	239,304	88.5	31,015	11.5	23,237	8.6	7,779	2.9
Adults in households	198,900	179,960	90.5	18,941	9.5	13,869	7.0	5,072	2.5
Children in households	71,418	59,344	83.1	12,074	16.9	9,368	13.1	2,707	3.8
Household composition:									
With children < 6	17,231	14,439	83.8	2,792	16.2	2,265	13.1	527	3.1
With children < 18	37,884	32,290	85.2	5,594	14.8	4,340	11.5	1,254	3.3
Married couple families	26,303	23,771	90.4	2,532	9.6	2,105	8.0	428	1.6
Female head, no spouse	8,744	6,146	70.3	2,598	29.7	1,890	21.6	709	8.1
Male head, no spouse	2,187	1,817	83.1	370	16.9	280	12.8	89	4.1
Other household with child**	650	556	85.6	94	14.4	66	10.1	28	4.3
With no children < 18	66,800	61,865	92.6	4,935	7.4	3,080	4.6	1,855	2.8
More than one adult	39,568	37,380	94.5	2,188	5.5	1,470	3.7	718	1.8
Women living alone	16,046	14,473	90.2	1,573	9.8	908	5.7	665	4.1
Men living alone	11,187	10,013	89.5	1,174	10.5	701	6.3	473	4.2
Households with elderly	24,704	23,265	94.2	1,439	5.8	1,055	4.3	385	1.6
Elderly living alone	10,049	9,413	93.7	636	6.3	423	4.2	214	2.1
Race/ethnicity of households:									
White non-Hispanic	78,998	73,451	93.0	5,546	7.0	3,873	4.9	1,673	2.1
Black non-Hispanic	12,616	9,936	78.8	2,680	21.2	1,866	14.8	814	6.4
Hispanic***	9,192	7,285	79.2	1,907	20.8	1,406	15.3	502	5.5
Other non-Hispanic	3,878	3,482	89.8	396	10.2	275	7.1	121	3.1
Household income-to-poverty ratio:									
Under 0.50	4,563	2,774	60.8	1,789	39.2	1,164	25.5	625	13.7
Under 1.00	11,319	7,169	63.3	4,150	36.7	2,767	24.5	1,383	12.2
Under 1.30	17,432	11,799	67.7	5,633	32.3	3,767	21.6	1,866	10.7
Under 1.85	27,261	20,145	73.9	7,116	26.1	4,907	18.0	2,210	8.1
1.85 and Over	63,909	61,299	95.9	2,610	4.1	1,969	3.1	641	1.0
Income Not Known	13,513	12,710	94.1	803	5.9	545	4.0	258	1.9
Area of residence:									
Inside metropolitan area	84,304	75,844	90.0	8,460	10.0	5903	7.0	2558	3.0
In central city****	26,718	23,027	86.2	3,691	13.8	2,578	9.6	1113	4.2
Not in central city****	43,103	39,793	92.3	3,310	7.7	2,290	5.3	1,020	2.4
Outside metropolitan area	20,379	18,311	89.9	2,069	10.1	1,517	7.4	552	2.7
Census geographic region:									
Northeast	19,960	18,301	91.7	1,659	8.3	1,147	5.7	512	2.6
Midwest	24,592	22,554	91.7	2,038	8.3	1,514	6.2	524	2.1
South	37,598	33,431	88.9	4,166	11.1	2,945	7.8	1,221	3.3
West	22,533	19,868	88.2	2,665	11.8	1,813	8.0	852	3.8

*,**,***,**** —See notes to tables, page 9.

cent), black and Hispanic households (6.4 and 5.5 percent, respectively), and households below the poverty line (12.2 percent). Geographically, hunger is more common in central-city households (4.2 percent) and in those in the South and West (3.3 and 3.8 percent, respectively).

Hunger rates below the national average were observed in households with elderly (1.6 percent), married-couple families with children (1.6 percent), multiple-adult households with no children (1.8 percent), white non-Hispanic households generally (2.1 percent), and households at or above 185 percent of the poverty line (1.0 percent).

Prevalence of Food Insecurity and Hunger in Low-Income Households

Prevalence estimates presented in this section are based on the unadjusted data from the 1999 survey.

Food insecurity and hunger are conditions that result from insufficient household resources. Food insecurity is six times as prevalent, and hunger eight times as prevalent, in households with annual income below 185 percent of the poverty line as in households with income above that line (table 2). However, many factors that might affect a household's food security (e.g., job loss, divorce, or other unexpected events) are not captured by an annual income measure. A few households experience episodes of food insecurity, or even hunger, even though their annual income is well above the poverty line. On the other hand, many low-income households (including almost two-thirds of those with income below the official poverty line) manage to remain food secure.

Table 3 presents food security and hunger statistics for households with annual incomes below 130 percent of the poverty line. About one-third of these low-income households were food insecure, and in 10.7 percent of those households, people were hungry at times during the year. Low-income households with children were more vulnerable to food insecurity than were households without children (40.3 percent versus 26.1 percent), and 42 percent of children in low-income households lived in food-insecure households. The prevalence of hunger, however, was slightly lower in low-income households with children than in those without children. Low-income single mothers with children were especially vulnerable; 44.3 percent of these households were food insecure, and in 12.9 percent of them, members were hungry at times during the year because of lack of money or other resources for food.

Caveats

The preliminary findings presented in this report are based on application of a consistent methodology to the five data sets for 1995-1999. Analysis of all these data sets is still in progress for presentation in subsequent reports. These ongoing analyses may produce further refinements to the prevalence estimates for these years, or in their form of presentation. Consequently, final estimates may differ in minor detail from those presented in the present report.

The measure of children in food-insecure households with hunger is not, as such, a valid estimate of the number of children directly experiencing hunger, but an upper bound for this figure. In most households, children are shielded from food deprivation until the level of deprivation among adult members is quite severe. Work is currently under way to develop a more accurate estimate of children's hunger.

Other sources of possible estimation bias in the prevalence estimates include: the omission of homeless persons from the CPS household-based sample, a probable underreporting bias of unknown size, and a potential over-estimation bias resulting from the highly skewed distribution of households across the range of severity measured by the scale.

Table 3–1999: Prevalence of food security, food insecurity, and hunger in households with income below 130 percent of the poverty line, by selected characteristics of households

(Based on unadjusted data)

Category	Total*	Food secure		Food insecure:					
				All		Without hunger		With hunger	
	1,000	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*
All low-income households	17,432	11,799	67.7	5,633	32.3	3,767	21.6	1,866	10.7
Persons in low-income households	47,159	30,283	64.2	16,876	35.8	12,064	25.6	4,812	10.2
Adults in low-income households	29,684	20,073	67.6	9,611	32.4	6,686	22.5	2,925	9.9
Children in low-income households	17,475	10,210	58.4	7,265	41.6	5,378	30.8	1,888	10.8
Household composition:									
With children < 6	4,070	2,475	60.8	1,595	39.2	1,234	30.3	361	8.9
With children < 18	7,583	4,525	59.7	3,058	40.3	2,278	30.0	780	10.3
Married couple families	3,022	1,919	63.5	1,103	36.5	880	29.1	223	7.4
Female head, no spouse	3,896	2,172	55.7	1,724	44.3	1,224	31.4	500	12.9
Male head, no spouse	515	329	64.0	185	36.0	146	28.3	40	7.7
Other household with child**	150	105	70.1	45	29.9	28	18.5	17	11.4
With no children < 18	9,849	7,274	73.9	2,575	26.1	1,489	15.1	1,086	11.0
More than one adult	3,780	2,878	76.2	902	23.8	534	14.1	367	9.7
Women living alone	3,953	2,963	75.0	990	25.0	561	14.2	429	10.9
Men living alone	2,116	1,433	67.7	683	32.3	394	18.6	289	13.7
Households with elderly	4,299	3,518	81.8	781	18.2	527	12.3	255	5.9
Elderly living alone	2,577	2,147	83.3	431	16.7	266	10.3	165	6.4
Race/ethnicity of households:									
White non-Hispanic	9,352	6,855	73.3	2,496	26.7	1,607	17.2	889	9.5
Black non-Hispanic	4,082	2,435	59.6	1,648	40.4	1,112	27.2	535	13.1
Hispanic***	3,221	1,974	61.3	1,247	38.7	900	27.9	347	10.8
Other non-Hispanic	776	535	68.9	242	31.1	147	18.9	95	12.2
Area of residence:									
Inside metropolitan area	12,978	8,602	66.3	4,376	33.7	2,902	22.4	1,473	11.3
In central city****	5,824	3,677	63.1	2,147	36.9	1,439	24.7	708	12.2
Not in central city****	4,536	3,097	68.3	1,438	31.7	956	21.1	482	10.6
Outside metropolitan area	4,454	3,197	71.8	1,257	28.2	864	19.4	393	8.8
Census geographic region:									
Northeast	2,756	1,939	70.3	817	29.7	540	19.6	277	10.1
Midwest	3,386	2,399	70.8	988	29.2	674	19.9	314	9.3
South	7,390	4,966	67.2	2,424	32.8	1,666	22.5	758	10.3
West	3,899	2,496	64.0	1,403	36.0	887	22.7	517	13.3

Notes to tables

* Total households in each category exclude households whose food security status is unknown. These households did not give a valid response to any of the questions in the food security scale, and they gave no indication of food security on preliminary screening questions. In 1999 these households represented 348,000 households (0.3 percent of all households). However, some of these households were screened out and deemed food secure under the common screen, reducing the missing households in table 1 to 216,000 (0.2 percent of all households) and raising the number of households with valid responses to 104,816,000.

** Households with children in complex living arrangements, e.g., children of other relatives or unrelated roommate or border.

*** Hispanics may be of any race.

**** Subtotals do not add to metropolitan totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

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Appendix A:
Households' Response Frequencies for Items in the Food Security Scale

Table A-1--Food security scale item responses, 1995, 1998, and 1999[1]

Scale items[2]	Percent of households affirming item[3]			
	1995 adjusted	1998 adjusted	1999 adjusted	1999 unadjusted
Household items:				
Worried food would run out before (I/we) got money to buy more	13.0	12.8	11.3	14.7
Food bought didn't last and (I/we) didn't have money to get more	10.6	10.8	9.9	12.2
Couldn't afford to eat balanced meals	10.0	9.1	8.0	9.5
Adult items:				
Adult(s) cut size of meals or skipped meals	6.5	6.0	4.7	5.2
Respondent ate less than felt he/she should	6.3	5.7	4.4	4.8
Adult(s) cut size or skipped meals in 3 or more months	4.7	4.2	3.4	3.6
Respondent hungry but didn't eat because couldn't afford	3.1	2.6	2.1	2.2
Respondent lost weight	1.7	1.6	1.2	1.2
Adult(s) did not eat for whole day	1.5	1.3	1.0	1.0
Adult(s) did not eat for whole day in 3 or more months	1.1	0.9	0.6	0.7
Child items:				
Relied on few kinds of low-cost food to feed child(ren)	13.2	13.6	12.1	14.4
Couldn't feed child(ren) balanced meals	8.7	8.4	7.3	8.2
Child(ren) were not eating enough	4.8	4.4	4.2	4.7
Cut size of child(ren)'s meals	2.0	1.6	0.9	1.0
Child(ren) were hungry	1.7	1.1	0.8	0.8
Child(ren) skipped meals	0.8	0.8	0.5	0.5
Child(ren) skipped meals in 3 or more months	0.6	0.5	0.4	0.4
Child(ren) did not eat for whole day	0.2	0.2	0.1	0.1

[1]Item response frequencies weighted to population totals.

[2]The actual wording of each item includes explicit reference to resource limitation, e.g., "because (I was/we were) running out of money to buy food," or "because there wasn't enough money for food."

[3]Households not responding to item are excluded from the denominator. Households without children are excluded from the denominator of child-referenced items.

Source: Current Population Survey Food Security Supplement, April 1995, August 1998, and April 1999.

Appendix B:
Background on the U.S. Food Security Measurement Project

This report of household food security in 1999 is the latest in a series of reports on Measuring Food Security in the United States. The series was inaugurated in September 1997 with the three-volume report *Household Food Security in the United States in 1995* (Hamilton et al., 1997a and 1997b; Price et al., 1997). The advance report of findings for 1995-1998 (Bickel, Carlson, and Nord, 1999) was released in July 1999 and a report detailing hunger and food insecurity prevalence by State for the 1996-98 period (Nord, Jemison, and Bickel, 1999) was released in September 1999.

The estimates contained in all of these reports are based on a direct survey measure developed over several years by the U.S. Food Security Measurement Project, an ongoing collaboration among Federal agencies, academic researchers, and both commercial and nonprofit private organizations (Carlson et al., 1999; Olson, 1999.) The measure was developed in response to the National Nutrition Monitoring and Related Research Act of 1990. The Ten-Year Comprehensive Plan developed under the Act specified the following task:

> Recommend a standardized mechanism and instrument(s) for defining and obtaining data on the prevalence of "food insecurity" or "food insufficiency" in the U.S. and methodologies that can be used across the NNMRR Program and at State and local levels.[1]

Beginning in 1992, USDA staff reviewed the existing research literature focusing on the conceptual basis for measuring the severity of food insecurity and hunger and on the practical problems of developing a survey instrument feasible for use in sample surveys at national as well as State and local levels.

In January 1994, USDA's Food and Nutrition Service (FNS) joined with the U.S. Public Health Service, Centers for Disease Control, and Prevention National Center for Health Statistics (NCHS), in sponsoring a national Conference on Food Security Measurement and Research. The conference brought together leading academic experts and other private researchers with key staff of the concerned Federal agencies. The conference identified the consensus existing among researchers in the field as to the strongest conceptual basis for a national measure of food insecurity and hunger and reached working agreement as to the best operational form for implementing such a measure in national surveys (USDA, 1995).

After extensive cognitive assessment, field testing, and analysis by the U.S. Census Bureau, a food security questionnaire was fielded by the Bureau as a Supplement to the Current Population Survey (CPS) of April 1995.[2] The Food Security Supplement was repeated in September 1996, April 1997, August 1998, and April 1999. Minor modifications to the questionnaire format and screening procedures were made over the first several years and a more substantial revision in screening and format, designed to reduce respondent burden and improve data quality, was introduced with the August 1998 CPS Supplement. However, the content of the "core module" questions upon which the U.S. Food Security Measurement Scale is based has remained constant in all years.

Intial analysis of the 1995 data was undertaken by Abt Associates, Inc., through a cooperative venture with FNS, the interagency working group, and other key researchers involved in developing the questionnaire.

The Abt team used nonlinear factor analysis and other state-of-the-art scaling methods to produce a measurement scale for the severity of deprivation in basic food needs as experienced by U.S. households. Extensive testing was carried out to establish the validity and reliability of the scale and its applicability across vari-

[1]Task V-C-2.4, U.S. Department of Health and Human Services and U.S. Department of Agriculture: Ten-Year Comprehensive Plan for the National Nutrition Monitoring and Related Research Program. Federal Register 1993, 58:32 752-806.

[2]The Current Population Survey (CPS) is a representative national sample of approximately 50,000 households conducted monthly by the U.S. Census Bureau for the U.S. Department of Labor, Bureau of Labor Statistics. Its primary purpose is to monitor labor force participation and employment in the Nation and each of the 50 States. The CPS also collects specialized supplementary data each month sponsored by various Federal agencies. USDA plans to administer the Food Security Supplement on a regular annual basis, alternating between the April and September CPS.

ous household types in the broad national sample (Hamilton et al., 1997a, 1997b).[3]

Following collection of the September 1996 and April 1997 CPS food security data, FNS awarded a second research contract to Mathematica Policy Research, Inc. (MPR), to reproduce independently the earlier results obtained from the 1995 CPS data, to estimate hunger and food insecurity prevalence for 1996 and 1997, and to assess the stability and robustness of the measurement model when applied to the separate data sets. The MPR findings, which will be presented in full in a forthcoming final report, establish the stability of the food-security measure over the 1995-97 period. That is, the relative severity of the items was found to be nearly invariant across years and across major population groups and household types.

In 1998, USDA's Economic Research Service (ERS) assumed sponsorship of the Census Bureau's annual food-security data collection for USDA. ERS has analyzed the 1998 and 1999 data, applying the procedures developed and established for USDA in the Abt and MPR research. The ERS work, which will be presented in a subsequent report, has found continuing stability of the measure in 1998 and 1999.

[3]The food security scale reported here is based on the Rasch measurement model, an application of maximum likelihood estimation in the family of Item Response Theory models (Wright, 1977, 1983). These statistical measurement models were developed in educational testing, where test items vary systematically in difficulty and the overall score measures the level of difficulty that the tested individual has mastered. In the present application, the severity of food insecurity recently experienced by household members is analogous to the level of test difficulty that an individual has mastered.

Appendix C:
Comparing Prevalence Rates of Food Insecurity and Hunger Across Years

Due to changes in administration of the Food Security Supplement over the first few years of data collection, prevalence statistics cannot be directly compared between some years. Inter-year comparisons to 1995, 1996, or 1997 require adjustment of data in all years to represent, post hoc, a common methdology. In this appendix, reasons for the inter-year differences are described, and tables of prevalence rates based on separate editing protocols are presented to facilitate comparison both to earlier reports and to anticipated future reports.

The main adjustment required for comparability of prevalence estimates is to apply common screening criteria to each year's data. In collecting the CPS food-security data, an initial screener is applied to higher income households to avoid undue interview burden for households showing little indication of a food adequacy problem. The exact specification of that screener was changed several times in the initial years of data collection. Further, in the 1996 and 1997 surveys a similar screen also was applied to lower income households. In any year, households screened out are deemed to be food secure, based on negative responses to the broad initial screening questions. Analysis of the 1995 data conducted after implementation of the 1996 and 1997 surveys indicated that a small but non-trivial proportion of the low-income households screened out in 1996 and 1997 would have been classified as food insecure if they had been asked the full set of food-security indicator questions. For this reason, screening procedures were again revised in 1998. Under the new protocol, all low-income households (with incomes below 185 percent of the poverty line), as well as higher income households that register indications of food stress on either of two preliminary screening questions, are asked the three least severe core food-security questions (or the first five if there are children in the household.) If any of these less severe items is affirmed, then additional, more severe core questions are asked.

To achieve strict comparability across years, data from 1995, 1998, and 1999 were, in effect, adjusted post hoc to the 1996-1997 screening rules.[1] Households that would have been screened out in any year are deemed to be food secure without reference to their actual responses. This method achieves cross-year comparability, but at the cost of discarding valid information and understating the prevalence of food insecurity. This is apparent in appendix figure C-1, which presents prevalence rates based on both common-screen-adjusted data and on full-sample, or unadjusted, data. For example, the best estimate of food-insecurity prevalence in 1999, using all data available, was 10.1 percent, while the estimate based on the more restrictive screening was 8.7 percent. The original 1995 screening method and the revised method adopted for 1998 and 1999, although different in form, show very little difference in their effect on estimated prevalence of food insecurity. However, the data as collected in 1996 and 1997 are problematic for inter-year comparisons. The screening method used in 1996 exerted a significant downward bias on prevalence estimates; this was reduced somewhat in the 1997 screening, but to an extent which is unknown. Consequently, direct comparisons between the unadjusted data appear to be acceptable only for the years 1995, 1998, and 1999.

The estimated prevalence of hunger is less affected by the screening differences across years because most households with this level of severity of food deprivation screen "in" under any year's protocol. The full-data estimate for 1999 is 3.0 percent, compared with estimated prevalence of 2.8 percent based on the more restrictive common screen.

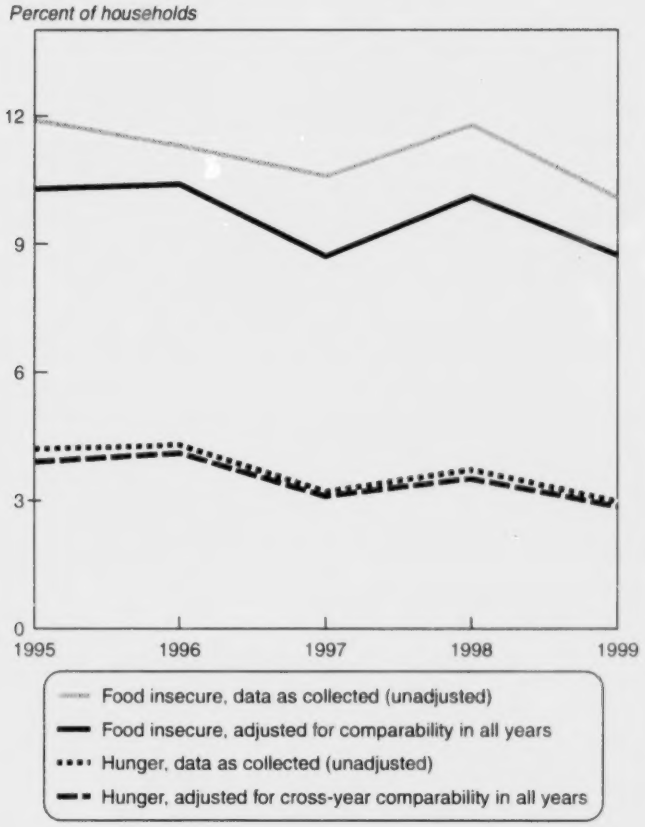
The revised screening protocol initiated in 1998 was continued in 1999 and is planned for 2000 and future data collections. Thus, food security and hunger prevalence statistics based on the full data as collected will be directly comparable from 1998 onward. The present report provides the bridging comparison. Table 1 and appendix table C-1 present 1999 statistics adjusted to be comparable to earlier years' statistics as presented in *Household Food Security in the United States*

[1]Other minor differences in the screening criteria used in different years also exist. As a result, the common screen applied in the 5 years is actually somewhat more restrictive than the screen applied in any single year, representing the least restrictive screening rules that could be applied uniformly across all 5 years. Details of the screening changes and construction of a common screen will be provided in a forthcoming FNS technical report.

1995-1998: Advance Report. Tables 2 and 3 present 1999 statistics based on full-sample data as collected. These are comparable to unadjusted 1998 statistics and to those for future years. Appendix tables C-2 and C-3 present 1998 statistics based on unadjusted data to complete the baseline of statistics based on the new screening protocol.

Appendix figure C-1

Comparison of prevalences of food insecurity and hunger in U.S. households, 1995-99



Data as collected in 1996 and 1997 are not comparable with 1995, 1998, and 1999.

Source: Calculated by ERS based on Current Population Survey Food Security Supplement data.

Table C-1--1999: Prevalence of food security, food insecurity, and hunger by selected characteristics of households

(Based on data adjusted for cross-year comparability)

Category	Total*	Food secure		Food insecure:					
				All		Without hunger		With hunger	
	1,000	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*
All households	104,816	95,664	91.3	9,152	8.7	6,166	5.9	2,987	2.8
All persons in households	270,609	243,652	90.0	26,957	10.0	19,441	7.2	7,515	2.8
Adults in households	199,116	182,793	91.8	16,323	8.2	11,447	5.8	4,875	2.4
Children in households	71,493	60,859	85.1	10,634	14.9	7,994	11.2	2,640	3.7
Household composition:									
With children < 6	17,260	14,782	85.6	2,478	14.4	1,967	11.4	511	3.0
With children < 18	37,927	33,030	87.1	4,897	12.9	3,682	9.7	1,215	3.2
Married couple families	26,318	24,205	92.0	2,113	8.0	1,691	6.4	421	1.6
Female head, no spouse	8,769	6,404	73.0	2,365	27.0	1,686	19.2	679	7.8
Male head, no spouse	2,187	1,857	84.9	330	15.1	244	11.1	87	4.0
Other household with child **	653	564	86.3	89	13.7	61	9.4	28	4.3
With no children < 18	66,889	62,634	93.6	4,255	6.4	2,483	3.7	1,772	2.7
More than one adult	39,603	37,758	95.3	1,845	4.7	1,158	2.9	686	1.7
Women living alone	16,068	14,715	91.6	1,353	8.4	706	4.4	646	4.0
Men living alone	11,218	10,160	90.6	1,058	9.4	619	5.5	439	3.9
Households with elderly	24,748	23,567	95.2	1,181	4.8	811	3.3	370	1.5
Elderly living alone	10,077	9,547	94.7	529	5.3	322	3.2	207	2.1
Race/ethnicity of households:									
White non-Hispanic	79,076	74,276	93.9	4,800	6.1	3,189	4.0	1,611	2.0
Black non-Hispanic	12,643	10,251	81.1	2,392	18.9	1,618	12.8	774	6.1
Hispanic***	9,218	7,580	82.2	1,638	17.8	1,156	12.5	482	5.2
Other non-Hispanic	3,878	3,556	91.7	322	8.3	203	5.2	119	3.1
Household income-to-poverty ratio:									
Under 0.50	4,570	2,882	63.1	1,688	36.9	1,070	23.4	618	13.5
Under 1.00	11,344	7,474	65.9	3,870	34.1	2,505	22.1	1,365	12.0
Under 1.30	17,474	12,216	69.9	5,258	30.1	3,419	19.6	1,839	10.5
Under 1.85	27,335	20,726	75.8	6,609	24.2	4,431	16.2	2,178	8.0
1.85 and over	63,925	62,002	97.0	1,923	3.0	1,350	2.1	573	.9
Income not known	13,556	12,936	95.4	620	4.6	384	2.8	236	1.7
Area of residence:									
Inside metropolitan area	84,415	77,081	91.3	7,334	8.7	4,882	5.8	2,452	2.9
In central city****	26,771	23,568	88.0	3,203	12.0	2,130	8.0	1,073	4.0
Not in central city****	43,145	40,249	93.3	2,896	6.7	1,917	4.4	979	2.3
Outside metropolitan area	20,401	18,583	91.1	1,818	8.9	1,284	6.3	534	2.6
Census geographic region:									
Northeast	20,002	18,544	92.7	1,458	7.3	963	4.8	495	2.5
Midwest	24,610	22,877	93.0	1,733	7.0	1,231	5.0	502	2.0
South	37,640	33,989	90.3	3,651	9.7	2,480	6.6	1,171	3.1
West	22,564	20,253	89.8	2,311	10.2	1,492	6.6	819	3.6

*,**,***,**** —See Notes to tables, page 9.

Table C-2–1998: Prevalence of food security, food insecurity, and hunger, by selected characteristics of households

(Based on unadjusted data)

Category	Total*	Food secure		Food insecure:					
				All		Without hunger		With hunger	
	1,000	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*
All households	103,309	91,121	88.2	12,188	11.8	8,353	8.1	3,835	3.7
All persons in households	268,366	232,219	86.5	36,147	13.5	26,290	9.8	9,857	3.7
Adults in households	197,084	174,964	88.8	22,120	11.2	15,632	7.9	6,488	3.3
Children in households	71,282	57,255	80.3	14,027	19.7	10,658	15.0	3,369	4.7
Household composition:									
With children < 6	17,087	13,882	81.2	3,206	18.8	2,529	14.8	676	4.0
With children < 18	38,036	31,335	82.4	6,701	17.6	5,049	13.3	1,652	4.3
Married Couple families	26,306	23,284	88.5	3,022	11.5	2,468	9.4	554	2.1
Female head, no spouse	8,807	5,692	64.6	3,115	35.4	2,183	24.8	932	10.6
Male head, no spouse	2,153	1,727	80.2	426	19.8	308	14.3	118	5.5
Other household with child**	770	632	82.1	138	17.9	89	11.6	49	6.3
With no children < 18	65,273	59,786	91.6	5,487	8.4	3,304	5.1	2,183	3.3
More than one adult	38,563	36,107	93.6	2,456	6.4	1,560	4.0	896	2.3
Women living Aaone	15,502	13,848	89.3	1,654	10.7	988	6.4	666	4.3
Men living alone	11,207	9,830	87.7	1,377	12.3	756	6.7	621	5.5
Households with elderly	24,309	22,741	93.5	1,568	6.5	1,105	4.6	463	1.9
Elderly living alone	10,006	9,374	93.7	632	6.3	421	4.2	211	2.1
Race/ethnicity of households:									
White non-Hispanic	78,238	71,775	91.7	6,462	8.3	4,413	5.6	2,049	2.6
Black non-Hispanic	12,471	9,443	75.7	3,028	24.3	1,971	15.8	1,058	8.5
Hispanic**	8,678	6,509	75.0	2,169	25.0	1,583	18.2	586	6.8
Other non-Hispanic	3,922	3,394	86.5	528	13.5	385	9.8	143	3.6
Household income-to-poverty ratio:									
Under 0.50	5,128	2,979	58.1	2,149	41.9	1,320	25.7	829	16.2
Under 1.00	12,270	7,596	61.9	4,673	38.1	2,999	24.4	1,674	13.6
Under 1.30	17,804	11,697	65.7	6,107	34.3	3,988	22.4	2,119	11.9
Under 1.85	28,833	20,758	72.0	8,075	28.0	5,406	18.8	2,669	9.3
1.85 and over	62,223	59,024	94.9	3,199	5.1	2,352	3.8	847	1.4
Income not known	12,253	11,339	92.5	914	7.5	595	4.9	319	2.6
Area of residence:									
Inside metropolitan area	83,064	73,278	88.2	9,786	11.8	6,647	8.0	3,138	3.8
In central city****	26,559	22,205	83.6	4,354	16.4	2,825	10.6	1,530	5.8
Not in central city****	42,217	38,311	90.8	3,905	9.2	2,770	6.6	1,135	2.7
Outside metropolitan area	20,245	17,843	88.1	2,402	11.9	1,705	8.4	697	3.4
Census geographic region:									
Northeast	19,576	17,501	89.4	2,075	10.6	1,419	7.2	657	3.4
Midwest	24,227	21,980	90.7	2,247	9.3	1,572	6.5	675	2.8
South	37,322	32,561	87.2	4,760	12.8	3,233	8.7	1,528	4.1
West	22,184	19,079	86.0	3,105	14.0	2,129	9.6	976	4.4

*,**,***,**** —See Notes to tables, page 9.

Table C-3--1998: Prevalence of food security, food insecurity, and hunger in households with income below 130 percent of the poverty line, by selected characteristics of households

(Based on unadjusted data)

Category	Total*	Food secure		Food insecure:					
				All		Without hunger		With hunger	
	1,000	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*	*1,000*	*Percent*
All low-income households	17,804	11,697	65.7	6,107	34.3	3,988	22.4	2,119	11.9
Persons in low-income households	49,530	30,364	61.3	19,166	38.7	13,392	27.0	5,774	11.7
Adults in low-income households	31,050	20,306	65.4	10,744	34.6	7,267	23.4	3,477	11.2
Children in low-income households	18,481	10,059	54.4	8,422	45.6	6,125	33.1	2,297	12.4
Household composition:									
With children < 6	4,397	2,517	57.2	1,880	42.8	1,437	32.7	443	10.1
With children < 18	8,162	4,556	55.8	3,606	44.2	2,581	31.6	1,025	12.6
Married couple families	3,285	2,038	62.0	1,247	38.0	965	29.4	282	8.6
Female head, no spouse	4,119	2,067	50.2	2,052	49.8	1,402	34.0	650	15.8
Male head, no spouse	548	322	58.8	226	41.2	166	30.3	60	11.0
Other household with child**	211	129	61.4	82	38.6	49	23.0	33	15.6
With no children < 18	9,642	7,141	74.1	2,501	25.9	1,408	14.6	1,094	11.3
More than one adult	4,151	3,099	74.7	1,052	25.3	659	15.9	393	9.5
Women living alone	3,558	2,740	77.0	818	23.0	470	13.2	348	9.8
Men living alone	1,934	1,302	67.3	632	32.7	279	14.4	353	18.2
Households with elderly	4,815	3,912	81.2	903	18.8	634	13.2	269	5.6
Elderly living alone	2,840	2,436	85.8	404	14.2	253	8.9	151	5.3
Race/ethnicity of households:									
White non-Hispanic	9,710	6,980	71.9	2,730	28.1	1,685	17.4	1,045	10.8
Black non-Hispanic	4,068	2,310	56.8	1,758	43.2	1,172	28.8	587	14.4
Hispanic***	3,281	1,899	57.9	1,382	42.1	972	29.6	411	12.5
Other non-Hispanic	744	508	68.3	236	31.7	160	21.5	76	10.2
Area of residence:									
Inside metropolitan area	13,189	8,456	64.1	4,733	35.9	3,069	23.3	1,664	12.6
In central city****	5,940	3,511	59.1	2,429	40.9	1,570	26.4	859	14.5
Not in central city****	4,699	3,194	68.0	1,505	32.0	967	20.6	538	11.4
Outside metropolitan area	4,615	3,241	70.2	1,374	29.8	919	19.9	455	9.9
Census geographic region:									
Northeast	2,997	1,970	65.7	1,027	34.3	659	22.0	369	12.3
Midwest	3,408	2,424	71.1	984	28.9	615	18.1	369	10.8
South	7,193	4,737	65.8	2,456	34.2	1,615	22.5	841	11.7
West	4,205	2,566	61.0	1,639	39.0	1,099	26.2	540	12.8

*,**,***,**** —See Notes to tables, page 9.

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